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ABSTRACT

A study was conducted in rural Maryland which utilized a 3-stage panel design with experimental and matched control groups. The questions to which answers were sought were: (1) What specific changes are achieved over time by nutrition aides visiting rural poor mothers in their homes? (2) Is there a point of diminishing returns with home visits? Homemakers were interviewed in 1970, 1971, and 1972 to determine shifts in their knowledge, attitudes, and nutritional practices, as well as related health and child-rearing practices. Questionnaires completed by aides in 1970 and 1972 and various service records also were analyzed. Variable improvements in knowledge, attitudes, and practices were documented, and specific program components were evaluated. Effectiveness of the Expanded Food and Nutrition Education Program was shown in relation to limited objectives. The longitudinal data on nutritional, attitudinal, and behavioral effects indicated that the impact of the aide on homemaker improvement diminishes after the first year of contact and that continuing home visits with the same homemakers in the third year are of minimal value. Original gains of the first year were not lost, but further gains were not apparent after the second year of home visits. (Author/HBC)

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A THREE-YEAR, LONGITUDINAL STUDY OF THE IMPACT OF NUTRITION AIDES ON THE KNOWLEDGE, ATTITUDES AND PRACTICES OF RURAL POOR HOMEMAKERS*

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ABSTRACT

What specific changes are achieved over time by nutrition aides visiting rural poor mothers in their homes? Is there a point of diminishing returns with home visits? Answers to these related questions were sought in a three-stage panel design with experimental and matched control groups in rural Maryland. Homemakers were interviewed in 1970, 1971 and 1972 to determine shifts in their knowledge, attitudes and nutritional practices as well as related health and child-rearing practices. Questionnaires completed by Aides in 1970 and 1972, and various service records also were analyzed. Variable improvements in knowledge, attitudes and practices are documented and specific program components are evaluated. Effectiveness of the Expanded Food and Nutrition Education Program is shown in relation to limited objectives.

The longitudinal data on nutritional, attitudinal and behavioral effects indicate that the impact of the aide on homemaker improvement diminishes after the first year of contact, and that continuing home visits with the same homemakers in the third year is of minimal value. Original gains of the first year are not lost, but further gains are not apparent after the second year of home visits.

Green, Wang and Ephross: Longitudinal Study of Expanded Food and Nutrition Education Program.

This paper presents the final results from a three-year, longitudinal evaluation of indigenous aides working with rural poor homemakers in the Expanded Food and Nutrition Education Program of the Maryland Cooperative Extension Service. The primary focus of this evaluation is on the question of how long aides should continue visiting individual homemakers: one year, two years or more.

Background

The Expanded Food and Nutrition Education Program (EFNEP) of the Extension Service has been subjected to the scrutiny of large scale, nation-wide evaluations of its performance[1] and its impact.[2] As an innovative deployment of indigenous aides and serving in its first two years over 600,000 families (2.9 million people) with an average income of $2,700, one-third of which is spent on food, the program commands serious evaluative attention. As with any complex, innovative program, however, there will be disagreement as to the appropriate standards and criteria to be used as dependent variables, and professional differences in the selection of program components to be evaluated as independent variables.

In general, the evaluations of EFNEP have focused on dietary improvement -- specifically changes in food knowledge and consumption practices -- as the criterion variables. They have used absolute standards of nutritional adequacy to judge the impact of the program. Specific elements of the program that have been used as independent variables are number of visits to a home-

maker within the first six months ("a measure of intensity of program instruction"),[2] characteristics of homemakers and families used in the selective allocation of effort (such as urban vs. rural, age, ethnic group, education, family size and composition, existing food knowledge and practices of homemakers, etc.),[1,2] and various structural elements such as employment level, training and supervision of aides, and relationships between federal, state and local levels of program management and operation.[1]

The results of these evaluations have been both encouraging and helpful. "Substantial improvements in food knowledge and consumption were evident",[2] especially in the milk groups.[1,2] Number of visits to the homemaker in the first six months was positively associated with improved consumption of foods in the milk and fruit/vegetable groups where it is most needed.[2] Changes in nutritional knowledge are much more a function of the educational efforts of the aides than of homemaker characteristics or initial knowledge level.[1] All that we can conclude from both studies is that homemakers with the poorest diets show more improvement than those with better initial food consumption practices,[1,2] but they also tend to stay in the program longer.[1]

There is less evidence, however, on the impact of the program beyond these immediate and limited effects. The study by Synectics Corporation did compare homemakers who had been in the program for varying lengths of time -- 6 months, 12 months and 18 months. There was a demonstrated tendency for dietary improvement to increase with duration of program participation up to

18 months, but those who had been in the program the longest had the lowest initial dietary levels.[1] Contrary to the conclusions of the Synectics Corporation, it may not be necessary to continue aide visits to most homemakers beyond the first year of contact. Certainly, the study by the Economic Research Service of USDA demonstrates that the differential impact on the homemakers with poor initial diets appears in the first six months,[2] and by Synectic's own admission, "the major impact of resource augmentation takes place early in the homemaker's program life and is not continuously increasing as a function of program tenure" (p. 12).[1]

A crucial issue, then, is how long individual homemakers should be retained in the program. Without better evidence of incremental benefits from sustained contact, EFNEP is vulnerable to the criticism that the 600,000 families served in the first 2 years should have been 1,200,000 families visited for an average of one year. Reaching twice as many families with the same effect, in the same time period and with the same manpower resources would represent a cost-benefit improvement of staggering proportions, not to mention the political value. It is reported that nationally one-third of these families have remained in the program to the present for a duration of almost 4 years.[3] In some locales the retention rate is as high as 60% or more.

There is another aspect of this issue besides the lack of proof that the same limited benefits accrue to homemakers in terms of dietary improvement

in half the time. Although EFNEP has limited objectives, one must ask, "Nutrition for what?" The standard response is nutrition for improved health, and that is sufficient, for health is an acceptable end in itself and a legitimized goal and function of government programs. There is increasing suspicion, however, of categorical health programs that deal only with specific health problems or limited aspects of health needs. The Synectics study asked both homemakers and aides about their perceptions of EFNEP benefits. Only 1.6 percent of 589 homemakers and 4.4 percent of 513 aides perceived any benefits or help in relation to health.[1]

If the primary benefits of the program in relation to food and nutrition practices are experienced in the first six months of contact, then one would hope that continuing educational contact might at least yield perceived benefits in relation to health.

Purpose of the Study

We have alluded in the foregoing review of past evaluations of EFNEP to several problems and issues that concern us. We designed a three-stage longitudinal study of the Maryland EFNEP in two rural counties -- one Appalachian and primarily white, the other on the Chesapeake delta (Eastern Shore) and primarily black -- to examine some of these issues. This paper summarizes our analysis of the third and final stage of this study with a combined panel of 93 homemakers who had been retained in the program for two to three years (combining the two counties and racial groups because earlier

analyses revealed few substantial differences between them).[4] In addition, this study includes a matched control group of 58 "friends" who were designated by the homemakers but were not participants in the EFNEP. The original design of the longitudinal study is described in a previous monograph,[5] but logistical problems forced modifications in the sampling which will be described below.

The main intent of this presentation is to supplement the earlier evaluations of EFNEP by examining the neglected issues of (1) appropriate criteria and standards of comparison, (2) the point of diminishing returns in continuing visits to homemakers, and (3) the broader impact of the program on selected health variables.

DESIGN, METHODS AND CONCEPTS

There are two experimental and two control groups in this study.* One experimental group consists of 49 EFNEP homemakers still being visited by aides after three years in the program. The second experimental group consists of 44 homemakers who have been progressed out of the program after the end of their second year.** The two experimental groups are derived from a 50 percent random sample of EFNEP homemakers in two Maryland counties. The control groups consist of matched samples of 34 designated friends of the

*"Control group" is a term used for the sake of brevity in this study to refer to the comparison groups not exposed to the program.

**The term "progressed out" includes all those homemakers who were dropped from the program because they have already received the maximum benefit the program is able to offer, those who left voluntarily, and those whose family have moved away. It is a term that the Extension Service prefers.

first experimental group and 24 friends of the second experimental group. All data are from interviews conducted in the homes by trained persons unrelated to the program. The rationale for this design can best be described in relation to the three issues outlined above.

Criteria and Standards of Comparison

On the basis of a previous examination in depth of preventive health practices of mothers, it was suggested that an appropriate "norm" or standard for judging the adequacy of their preventive health behavior was whether it was at least as good as that of their peers. Rather than considering people "hard to reach" simply because their health practices are not consistent with health department goals or medical and nutritional standards, this approach judges people as deviant, recalcitrant or substandard in their health or nutritional behavior only if it is below the norm for their own self-identified social stratum.[6]

Applied to the professional evaluation of individual behavior in service programs, this approach would hopefully reduce the tendency of professionals to employ attitude-change strategies on all poor people when institutional-change or social-change strategies are clearly in order. Rather than expecting and demanding "middle class" behavior of individual patients and clients who live in poverty, it would focus on individual change only for those whose behavior is less than that of their peers, or less than that generally expected of people at their income and educational level. Beyond

that, professional and agency efforts would be directed at bringing about changes in the social and economic structures inhibiting improved practices for the group as a whole.[7]

The current study attempts to evaluate the Maryland nutrition education program in these terms. There are two standards of acceptability used in judging the nutritional behavior of homemakers who are recipients of education by indigenous aides in this program. One is a historical standard, comparing homemaker behavior of the first experimental group in the third year of the program with their own behavior earlier in the program to determine the point at which educational efforts directed at individual change in the poor are no longer productive, ie. the point of diminishing returns for personalized educational strategies. We have already documented in previous evaluative study of this program in the same population that improvements in nutritional practices and in certain attitudes continue to occur in the second year of contact between aides and homemakers.[5] This study will examine whether these improvements are sustained and whether they continue in the third year of the program.

The second standard of acceptability employed in evaluating individual behavior in this study is a normative standard, using friends designated by the homemakers as a comparison group. Evaluative studies of programs of this kind are seldom able to assign subjects to experimental and control groups on a purely random basis. The next best thing, usually, is a matched sample

of subjects to serve as a control group. In keeping with the status identity concept proposed earlier, we felt that the best matching procedure would be one in which the experimental subjects themselves identified friends with whom they compared themselves. On the basis of previous research, these designated friends should be expected to be of equal or very slightly higher socioeconomic status than the program homemakers themselves.[6] Such was in fact the case with the designated friends in the second year of this program.[5]

The Point of Diminishing Returns

It was originally intended that the homemakers should be randomly assigned to first and second experimental groups at the end of the second year because the second experimental group was intended to serve as a control group in the sense that they would not receive the experimental treatment (continuing educational contact) in the third year. For administrative and ethical reasons it was impossible to make the assignments randomly. The termination of homemakers in the second and third years was controlled by aides and homemakers themselves, not by the investigators. Differences between the first and second experimental groups, therefore, cannot be attributed entirely to the "value" of the second and third years of continuing educational contact. Some of the variation between the two groups must be attributed to the "reasons" of the second group or their aides for "dropping out".

With our control groups of designated friends it is nevertheless possible

to improve upon the evaluation of tenure in the program over that of the Synectics Corporation.[1] None of the three groups (6 months, 12 months and 18 months) in the Synectics evaluation had dropped or been dropped from the program at the time their dietary progress was determined. Furthermore, our experimental groups consisted of a more homogeneous sample of homemakers all of whom had remained in the program for at least one year. The Synectics groups were not independent, each of the later groups being a surviving sub-sample of the earlier group, whereas our design allows for the comparison of two independent experimental groups. The Synectics data were obtained by the program aides whereas ours were from specially trained interviewers. Finally, our design provides for the additional assessment of the persistence of changes in homemakers after being progressed out of the program. This is a slightly different issue than that of the point of diminishing returns.

Impact on Health

Our major disadvantage relative to previous evaluations of EFNEP is that we do not have a pre-program baseline. Our first interviews were conducted at the end of the first year of the program in 1970. The first interviews also did not include questions on health, so that our first baseline on health variables is the second survey conducted in 1971 at the end of the second year of the program. In order to provide for comparisons in addition to the responses of the control group of designated friends, we used interview items from a preventive health behavior survey conducted previously in

California.[6,8]

The health items focus primarily on those aspects of health knowledge, attitudes and behavior that nutrition aides might influence directly or indirectly in the normal course of their work with EFNEP homemakers, especially by the third year.

RESULTS

Our first question is who was progressed out of the program after the first year. A comparative profile of this group contrasted with that of the homemakers still active in the program at the end of three years should reveal some of the "reasons" for progressing out. These inferred reasons, in turn, should assist us in interpreting the differential impact of the program on the knowledge, attitudes and behavior of those continuing and those terminated.

Our second question is how these two experimental groups compare with their respective groups of designated friends. This comparison will aid in the interpretation of progress made by the two experimental groups of EFNEP homemakers in contrast with the knowledge, attitudes and behavior of peers not included in the program.

Characteristics of Experimental and Control Groups

Table 1 presents the racial, educational and rural background characteristics of the four study groups. It is immediately apparent that Caucasian homemakers have been progressed out in much larger proportions than blacks

and that the decision to progress out homemakers after the first year of contact has been influenced by educational level and administrative decisions of the supervising agent in mutual agreement with aide and homemaker. A large proportion of continuing homemakers are rural in their background.

Table 1 about here

The educational and racial compositions of the two experimental groups contrast more with each other than with their respective control groups of designated friends. This is as it should be for later comparisons, but it should also be noted that the educational difference between the terminated homemakers and their friends is greater than the difference between the continuing homemakers and their friends. This contrast becomes more evident in Table 2, in which education is standardized on the same scale as income and the two variables are combined in a socioeconomic scale adjusted for race. The standardization is based on U. S. Census distributions on income in the Southern states and female education in the United States with the means set at 50 and the standard deviations at 10. The composite socio-economic index is designed to be relevant primarily to preventive health behavior.[9]

Table 2 about here

The standardization of scores in Table 2 allows for comparison in every direction. The educational level of each group, relative to all adult women in the United States is higher than their income levels, relative to all households in the South. All groups are below the population means (50) by all measures, and all but the terminated homemakers are a full standard deviation or more below the mean income level of the Southern states. The two-factor SES index adjusted for race favors the terminated homemakers because it gives greater weight to education for whites and greater weight to income for blacks. The composite scores would have predicted higher levels of preventive health behavior in those groups with higher scores.

The homemakers who are continued in the program are a more economically dependent and socially disadvantaged group than the homemakers who have been progressed out of the program. The control groups of friends of the two experimental groups tend to match their homemaker friends. The original groups of friends designated by the homemakers in 1971 were slightly higher on these measures[5] than the sub-groups of friends still available for interview in 1972. This suggests that the higher status friends tended to move away during the year between the two surveys. Few respondents refused the interview. The remaining control groups are still sufficiently comparable to their respective experimental groups to allow matched group comparisons.

Further evidence of the dependency and disadvantaged profile of the continued homemakers in contrast to those progressed out of the program is

provided by Table 3. The former are older women, on the average, with larger numbers of dependent children and fewer adults in the household to assist them. Their youngest child is also younger, on the average, than those of the terminated homemakers. The friends tend to be older women with fewer children and older children than the EFNEP homemakers.

Table 3 about here

In addition to the relative socioeconomic and educational deprivation of continued homemakers, one also begins to picture a housebound mother with fewer opportunities for contact with other adults. This picture is confirmed by data in Table 4. We asked all respondents how frequently they got together with friends or neighbors or relatives, and we gave them the categories shown at the top of Table 4. A larger proportion of the terminated homemakers and their designated friends indicated more than once-a-month contacts than continued homemakers and their designated friends. The relative isolation of the continued homemakers is even more salient in the other items in Table 4.

Table 4 about here

We may infer, then, that the decision to continue a homemaker in the program beyond the first year was based on perceived needs of the homemakers.

Those who were progressed out of the program were clearly better off socially, financially, educationally and in terms of their family composition and alternative social contacts.

Impact of EFNEP on Nutritional Behavior

The continued homemakers had all been in regular contact with their EFNEP aide for 36 months, compared with an average of 21.4 months for the terminated group, at the time of the 1972 interviews. This difference of more than one year, on the average, of continued EFNEP investment in specific homes must be justified primarily in terms of the major objectives of the program, namely improved food and nutrition practices.

When asked whether they thought the aide had been helpful to them 100 percent of the study panel of 49 continued homemakers said "yes" in 1970, 1971 and 1972. Some of the terminated homemakers, 7 percent, said "no" but most of them, too, had been satisfied with the helping relationship. Learning to eat or cook new or different foods were the most frequently mentioned of ways in which the aides had been helpful. Significantly, at the end of the second year one-third of the continued homemakers also mentioned emotional support, compared with 11 percent of the terminated homemakers. The proportion dropped to 4 percent for the continued homemakers in 1972. As suggested in the previous section, the need for emotional support and the ability of aides to meet that need apparently played a part in the decisions to retain the continued homemakers.

Comparison shopping practices were mentioned as a benefit by 22 percent of the continued homemakers and 36 percent of those who were progressed out. Handcrafts and sewing were mentioned by 16 percent of the continued homemakers and only 11 percent of those terminated. Other benefits such as food stamps, specific crises, household care and coping with family problems were mentioned by fewer than 10 percent of either group.

To determine whether these perceived benefits had actually been incorporated in the nutritional practices of the EFNEP homemakers, we obtained a complete inventory of the foods prepared by each homemaker the day before the interview. The results over time and for the study groups are shown in Table 5.

Table 5 about here

It is immediately clear from the comparisons over time and between experimental and control groups, that the major gains in nutritional adequacy, if any, are achieved in the first year of contact between aide and homemaker, that there is a definite deterioration in the diet of continued homemakers in the third year of contact, and that the nature of the gains are primarily in moving people from "fairly well-balanced" to "well-balanced" meals, without much change in the proportions continuing to have poor diets. These results would seem to argue for using the second year of home visits

to reward and reinforce the gains of the first year, to establish the new practices as habits rather than allowing them to atrophy while other homemaking skills are explored. The aides probably need more training in reinforcement techniques if they are to work effectively as food and nutrition educators.

Allowing for the possibility that the previous day's meals were inadequate because of financial resources, we asked each respondent what she would have served her family yesterday if she had $5.00 extra. The responses were quite uniform over time, with minor differences between groups. The meat and vegetable/fruit groups were most frequently cited, in that order. Milk and cereal groups were mentioned by very few.

Asked whether any of the foods prepared yesterday were learned from the EFNEP aide, the respondents revealed an interesting pattern over the three years of the program. At the end of the first year, 31 percent of the panel of continuing homemakers said yes. In the second year this response increased to 44 percent, but then dropped back again to 41 percent at the end of the third year. At that time only 20 percent of the homemakers who had been progressed out of the program attributed any of their foods to the aide. It would appear that the point of diminishing returns on the addition of food variations by the EFNEP aide is two years.

Similarly, on the purchase of different foods, there was a major increase between the first and second year, but by the end of the third year the per-

centage of the continuing homemakers who said yes, they do buy different foods than before because of what they learned from their aide, declined from 84 to 80. Of those who had been progressed out of the program, 77 percent still credited new foods purchased to their aides. Again it appears that the third year of home visits is superfluous.

The frequency of buying new foods learned from the aide also declines after the second year. In 1971, 49 percent of the continuing homemakers said they purchased new foods learned from their aides at least once a week. In 1972 this percentage had dropped to 45 percent in the same group of continuing homemakers, while 45 percent of the terminated homemakers still reported buying such foods at least once a week.

The final series of questions concerning nutrition practices asked whether the homemaker was cooking any foods differently because of what she had learned from her aide; if so, which ones and how often. There was absolutely no change in the percentage (78) of the study panel who said "yes" in 1970, 1971 and 1972. The corresponding percentage for the terminated homemakers in 1972 was 58, indicating that there may be some attrition in cooking practices learned from EFNEP aides after the aides withdraw.

Again, meats and other protein sources were the most commonly mentioned food group; milk and dairy products the least. There was a steady increase in the proportion of continued homemakers mentioning combinations of more than one food group, including an increase from 42 percent in 1971 to 53

percent in 1972. Only 30 percent of the terminated homemakers specifically attributed such combinations to the aide, but an additional 21 percent said they were cooking the same foods that they would have bought anyway somewhat differently because of what they learned from the aides. Thus, the terminated homemakers appear to have benefited primarily in terms of learning new receipes rather than new foods.

The frequency of preparing foods by new recipes learned from EFNEP aides declines radically in the third year for continued homemakers. Those who said more than once a week increased between the first and second year from 35 percent to 49 percent, but then decreased back to 35 percent. Only 20 percent of the terminated homemakers continued to use these receipes more than once per week in the third year.

All of these self-reported behavioral variables, of course, are highly subject to biases introduced by the emotional aspect of the relationship with the aide and the degree to which the homemaker has found other rewards through her participation in the program. Before passing judgment on the third-year of EFNEP home visits, therefore, let us examine its impact on some of these other possible products of the continuing educational encounter.

Impact of EFNEP on General Attitudes and Outlook

A set of questions in the successive surveys attempted to determine whether aides were influencing the general emotional health, outlook on life and coping ability of homemakers. Using as a standard of comparison the

attitudes of friends in these areas, the program appeared to have achieved and sustained a high level of optimism in EFNEP homemakers through the first two years of operation.[5] We find now, however, some erosion of this sense of well-being as evidenced in the following analysis.

The first item was a question asking, "In general, do you think things are getting better or worse for people like yourself?" There was an increase from 47 percent of the continuing homemakers saying "better" in the first year to 58 percent in the second. By the end of the third year the percentage dropped back to 53. This is only slightly better than the 50 percent of matched friends who believe things are getting better. The net change, then, has been minimal, although there was a period of heightened optimism during the second year of the program. The terminated homemakers, on the other hand, are much less optimistic in the third year. Only 34 percent of those who had been progressed out of the program saw things getting better; a nearly equal 32 percent saw things getting worse. If this finding portends a kind of pessimism or cynicism that should be expected to set in when aides sever contact with homemakers, the attitudinal value of the program must be seriously questioned. We find, however, that the matched control group of friends of the terminated homemakers are even more pessimistic, only 25 percent seeing things improving and 50 percent perceiving things getting worse. This comparison suggests that the pessimism of the terminated homemakers is not the result of being progressed out of the program.

A second item, somewhat more future-oriented, revealed similar results. In response to the question "How well do you think you and your family will be doing five years from now?" there was a decline in optimistic responses between the first and second years and a stabilization at 33 percent saying "much better" and 43 percent "a little better" in the third year. The combined 75 percent optimistic in the continuing homemakers is again significantly better than the 47 percent in the terminated homemakers, but only slightly better than 68 percent in the friends of continued homemakers. The pessimism of the terminated homemakers is similar to that of their designated friends where only 50 percent gave optimistic replies.

These results confirm previous conclusions: The EFNEP aides achieve minor improvements in the morale of homemakers early in their relationship and they tend to stay with those homemakers who benefit most from their help. Homemakers progressed out of the program, though better off socioeconomically, tend to be less sanguine about the future. If maintaining morale is to be a justification for the third-year of continuing home visits to homemakers, it must be demonstrated to be more than a social narcotic for the poor. Indeed, a state of unrealistic hope seems to characterize the continuing EFNEP homemakers, for they are clearly more socially and economically disadvantaged and isolated than the terminated homemakers, yet they are more satisfied with their prospects.

One must then ask whether the continuing educational contact is achieving any kind of improved skills in planning and coping with life. We asked

homemakers whether they thought of themselves as "the kind of person who usually plans ahead, or do you usually take things as they come?" Rather than increasing planfulness, the third year of the program saw a decline in the proportion of continuing EFNEP homemakers who "usually plan things ahead" from 42 percent in 1971 to 35 percent in 1972. This leaves them only slightly more planful than the matched control group of friends, of whom 32 percent "usually plan things ahead." The terminated homemakers are much more oriented to planning, with 48 percent indicating that they plan rather than "take things as they come".

Identical percentages, 35 and 47, are obtained for continuing and terminated homemakers on the question of believing that what happens to them is mostly their own doing. Friends of the continued homemakers were only 24 percent in favor of this proposition, whereas friends of the terminated homemakers were 62 percent in favor of believing in internal rather than external control. Also, only 20 percent of the continued homemakers, compared with 27 percent of their friends and 61 percent of the terminated homemakers thought there was much they could do about the way their children would "turn out".

EFNEP apparently has not given homemakers in their third year of program tenure the action orientation necessary to justify their optimism. If continuing homemakers are to remain both optimistic and dependent on external control, they need more than just food and nutrition education to avoid

bitter disappointment and suffering in the coming years. In particular, they need community resources that will be available and accessible to them when their new, unanticipated problems emerge; and they need education on how to utilize these resources to prevent or cope with these problems.

What are these problems most likely to be? We asked both EFNEP homemakers and designated friends what were their biggest problems. The most commonly cited, after money, was health. We also asked what had been the biggest change in their family life in the past year. Sickness was mentioned by only 4 percent in the first two years, but by 14 percent of continuing homemakers and 16 percent of terminated homemakers in the third year. When asked more directly how they perceived their own health at present, the proportion of continuing homemakers who saw their own health as good or excellent decreased from 47 percent to 35 percent between the second and third years. In a predominantly rural sample of California mothers with incomes under $3,000 the corresponding percentage was 80. It is evident that a problem of increasing importance and concern to this group of EFNEP homemakers is health.

Impact of EFNEP on Health

If homemakers were feeling increasingly worse about their health during the second and third years of their involvement in EFNEP, there are at least three things the aides could have done educationally. They should have been able to make health referrals to avail the homemakers of needed community resources. Secondly, the aides should have been able to inform the home-

makers of health resources which they could use in the future. Thirdly, the aides should have been educating for a preventive health orientation from the beginning. While recognizing the limits of health education training given the aides, we shall evaluate these three educational functions as if they were objectives of the program. The results can at least serve as a baseline for future evaluative studies if and when a broader health orientation does become a formal part of EFNEP activities.

Concerning referral for health care, we asked homemakers and the matched group of designated friends if they were using certain basic health services for which they were eligible. We asked first if they had a regular doctor or place they would go if they were sick. We then asked if they or their children had ever gone to a clinic for free "shots or vaccinations". Homemakers and friends were also asked if they had ever had a public health nurse visit their home, whether they had ever used a free medical service for a sick child, whether they had ever used food stamps, Medicaid (or Medicare if eligible), and whether they had ever been to a dentist. The percentages of positive responses are shown in Table 6.

Table 6 about here

It appears that the aides have made successful referrals especially in relation to public health nursing visits, free medical care for sick children,

food stamps and possibly dental care. The remaining indicators show little or no improvement over the corresponding indicators for the matched control group of friends of the continued homemakers in 1972. Although it is encouraging to note that most of the homemakers and friends have a regular place to go when they are sick, most of the sources of regular care indicated in response to a subsequent question were private (60 to 90 percent) rather than public. Only 25 percent of the continued homemakers indicated that they used a clinic, hospital or other public source of care. Dependence on private physicians for care would be understandable and perfectly acceptable if there were more use of Medicaid or Medicare. There is considerable confusion in this group concerning public clinics, as indicated by the drop between 1971 and 1972 in percentage of homemakers saying they have ever used such clinics for free shots or vaccinations.

This confusion relates to our second concern with the information function of aides. Preceding some of the questions about the use by homemakers of particular health care resources we asked questions about their knowledge of those resources. In addition we asked about their knowledge of places to get certain preventive health services such as advice or materials for birth control and free pregnancy or prenatal care. The percentages of positive responses on these indicators of adequate information are shown in Table 7.

Table 7 about here

The EFNEP aides have apparently informed some of the homemakers on some of the health resources, most notably family planning resources, as indicated by the comparison of continuing homemakers in 1972 with the matched control group of friends in 1972. But there is little evidence of the terminated homemakers having received much health information from their aides while they were in the program, and there is little evidence of increased knowledge among the continuing homemakers between the second and third years. Indeed, there is an apparent decline in the percentage of continued homemakers who claim any knowledge of certain kinds of clinics and knowledge about food stamps between the two surveys. We have already noted some confusion among homemakers about the meaning of free clinics. The increase in percentages who disavow any knowledge of places to get free care could be attributable to increased knowledge about places previously assumed to be free but since learned to have charges associated with the services.

A further probe, for example, on the question of places to get free shots or vaccinations was "As you understand it, can anyone go there for free shots or can only certain people go there?" In 1971, among continuing homemakers, 11 percent said they did not know who was eligible and 60 percent said "anyone can go". In 1972 only 2 percent of the same homemakers said they didn't know and only 55 percent said "anyone." These decreases in vague answers probably account for the increases in percentages of homemakers who say they do not know of such places to get free care.

Some of the increases in knowledge of health resources and food stamps must be attributed to the referral efforts of aides rather than to their giving of information directly to the homemakers. When asked, "Who first told you about food stamps?" only 33.3 percent of the continuing homemakers in 1971 and 43 percent in 1972 credited an Extension Aide. Caseworkers were the most common alternative source of information. The same question on Medicaid or Medicare yielded virtually no responses giving credit to EFNEP aides as the source of information; most of the continuing homemakers in 1971 indicated caseworkers and health departments, whereas most of them in 1972 cited caseworkers and relatives.

Finally, we asked a series of questions about preventive health practices. Three years of home visits to individual homemakers would be a health educator's dream if he were asked to design an ideal program to influence the health practices of the rural poor. Return visits over time to the environment in which health behavior is enacted offers the change agent an opportunity to identify natural barriers and rewards to existing behavioral patterns and to program a schedule of reinforcement for the shaping of new health practices. In the case of EFNEP aides, we have already seen that such reinforcement has not been evident in relation to nutrition practices which constitute the primary objectives of the program. We have also seen that initiative does not characterize the homemakers. We should not be surprised, therefore, to find that preventive health practices have not been heavily

influenced by the program.

There are certain preventive health actions, however, that require a one-time performance to achieve lasting protection against specific diseases or conditions. We have found that aides have been successful in referring homemakers to appropriate health care resources when there was an illness or other specific problem. It should be possible to refer them also for specific preventive services such as immunizations, prenatal care, family planning and prophylactic dental care. Table 8 illustrates the potential for such education in the EFNEP home visits.

Table 8 about here

The items related to prenatal care suggest that aides probably did influence homemakers at least to see a doctor during their last pregnancy, although not particularly early. Among the possible immunizations, only those for poliomyelitis appear to have been influenced by the aides. The neglect of tetanus in this rural poor population is especially unfortunate. The neglect of dental care should be of particular concern to EFNEP because sound teeth are important to good nutrition.

The last two items in Table 8 relate to objects which are found in most homes other than those of the poor, and which probably make a major difference in the earliness of diagnosing illnesses. We have proposed that the EFNEP

aides could begin health education by introducing a thermometer and a lay reference book (such as Spock) to homemakers along with recipe books. The thermometer and lay medical book, if used together with referrals to community health resources, could possibly give homemakers a greater sense of control over the health of their families, a need which we have identified as crucial to the further progress of this group.

CONCLUSIONS

Our study design and sampling techniques preclude the use of statistical significance tests to confirm or reject any formal hypotheses, but the cumulative evidence of numerous comparisons between continued homemakers and others lead us to assert certain conclusions with greater confidence than we might have from a more controlled study of a narrower range of reality. We are prepared to assert on the basis of these data that the third year of continuing home visits with the same homemakers has been of minimal, if any, value beyond the achievements with these homemakers in the first two years. There definitely is not a straight-line progression in knowledge, attitudes or behavior from the first through the third year, and there probably is not enough progression of any kind to justify the continued investment in the same families rather than starting with new ones by the end of the second year.

This is not to say, however, that continued home visits have no potential. We have identified some particular problems which might respond to a shift in

educational methodology and focus in the second year. Specifically, we have suggested that the strong, emotional support provided by the aide in the first year has tended to produce an optimistic but passive and dependent homemaker whose own initiative in planning and coping has been abdicated to the aide and to other external forces. We propose that greater emphasis be given to the training of aides in techniques that reward the homemaker for initiative and reinforce acts that represent control rather than dependence. The aide, like any professional worker, must guard against the addictive relationship in which client and helper are meeting succorance and nurturance needs symbiotically. If the aide fails to see the lack of growth that we have documented in the client's third year, then she has probably fallen prey to this kind of relationship.

We have further suggested that the point of diminishing returns may be partly a function of the limited scope of the program's objectives. Additional progress in nutritional practices beyond a certain point may depend on meeting certain other needs first. Our data indicate that some gains are lost in the third year while some other major concerns and needs, namely health, remain unmet. The homemaker apparently loses interest in new recipes and balanced meals as her health needs become intensified. Whether there is a cause-effect relationship between the two and which precedes the other are not so important as the apparent need for the program to deal with both in a

comprehensive rather than categorical way.

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Table 1. Characteristics of EFNEP Homemakers continued in the Program for 36 months, those terminated from the Program between the first and third years, and the designated friends of each group of Homemakers, Cooperative Extension Service, University of Maryland.

Percentages

	Homemakers		Friends	
Race	Continued	Terminated	Continued	Terminated
White	34%	72%	28%	67%
Black	66	28	72	33
Education				
Under 4 yrs.	6	5	--	--
4-6 yrs.	17	5	9	22
7-8 yrs.	25	21	44	26
9-10 yrs.	25	24	18	26
11-12 yrs.	23	42	26	22
12+	4	3	3	5
Origin				
Farm	55	51	56	55
Small town	29	28	36	22
Small city	9	15	4	14
Large city	7	6	4	9
(N)	(49)	(44)	(34)	(24)

Table 3. Family composition of continuing and terminated EFNEP Homemakers and their respective groups of designated friends, rural Maryland, 1972 Cooperative Extension Service, University of Maryland.

	Means			
	Homemakers		Friends	
In Home	Continued	Terminated	Continued	Terminated
No. adults (age 18+)	1.9	2.2	2.1	2.3
No. children (under 18)	3.7	3.3	2.9	3.0
Mean age of youngest child	5.2	5.9	5.4	6.3
Mean age of respondent	45.1	42.3	47.4	44.0
(N)	(49)	(44)	(34)	(24)

Table 4. Relative isolation of continued and terminated EFNEP Homemakers and their designated friends.

	Percentages			
	Homemakers		Friends	
Visit with friends	Continued	Terminated	Continued	Terminated
Less than once/month	15%	3%	21%	8%
About once/month	12	12	9	--
Several times/month	15	25	12	25
A few times/week	33	39	23	33
Every day	25	21	35	33
Usual Transportation				
Own car	51	75	41	71
Friends car	29	16	35	21
Bus	--	2	3	--
Walk	15	2	9	--
Others	5	5	12	8
Church attendance				
Never	20	17	12	13
Less than once/month	33	22	32	8
Once/month	6	11	9	4
2-3 times/month	16	8	12	13
Once/week+	25	42	35	62
Presence of husband				
No	35	27	34	17
Yes	65	73	66	83
(N)	(49)	(44)	(34)	(24)

Green, Wang and Ephross: "Longitudinal Study of Expanded Food and Nutrition Education Program".

Table 5. Ratings of nutritional adequacy of the previous day's meals prepared by EFNEP Homemakers in 1970, 1971 and 1972 and by designated friends in 1971 and 1972, Cooperative Extension Service, University of Maryland.

	Homemakers (Exptl. Groups)						Friends (Controls)		
	1970	1971		1972			1971	1972	
Rating of each meal	Panel	All	Panel	All	Panel	Term.	All	Contin.	Term.
Well-balanced	24%	22%	21%	22%	17%	29%	13%	15%	23%
Fairly well-balanced	43	35	54	44	50	40	59	59	52
Not well-balanced	18	15	17	17	18	20	16	22	24
Clearly inadequate	15	27	8	9	15	11	5	4	2
N.A., don't know	--	2	--	7	--	--	7	--	--
Mean nutritional adequacy of meals*	1.8	1.5	1.9	1.9	1.7	1.9	1.8	1.9	2.0
Total meals reported	(221)	(367)	(241)	(249)	(219)	(223)	(132)	(158)	(121)

*Based on meals actually reported, scoring 3 for well-balanced, 2 for fairly well, and 1 for not well-balanced and 0 for clearly inadequate meals. These ratings were made independently by professional nutritionists.

Table 6. Indicators of adequate referral for health care in the rural Maryland EFNEP, 1971 and 1972, Cooperative Extension Service, University of Maryland.

Health Care Indicator*	Percentages				
	Homemakers (Exptl. Group)			Friends (Control)	
	Continuing		Term.	Cont.	Term.
	1971	1972	1972	1972	1972
Regular place to go when sick	87%	92%	96%	94%	88%
Ever used clinic for free shots	78	63	57	62	67
Ever had public health nurse visit	82	86	84	68	87
Ever had free care for sick child	53	59	36	41	46
Ever used food stamps	69	67	46	59	25
Ever used Medicaid or Medicare	49	55	50	53	25
Been to a dentist in past two years	--	39	45	32	46
(N)	(45)	(49)	(44)	(34)	(24)

Table 7. Indicators of adequate knowledge of health care resources among Homemakers and Friends in the rural Maryland EFNEP, 1971 and 1972, Cooperative Extension Service, University of Maryland.

	Percentages				
	Homemakers (Exptl. Group)			Friends (Control)	
	Continuing		Term.	Cont.	Term.
Knowledge Indicator	1971	1972	1972	1972	1972
Know of clinic to get free care	22%	10%	16%	3%	4%
Know of place to get free shots	82	71	70	62	75
Know of place to get family planning	76	81	46	48	50
Know of place for free prenatal care	44	47	50	41	46
Know of place for free care of sick baby	60	61	41	53	46
Know what Medicaid or Medicare is	73	74	80	74	75
Know about food stamps	87	82	86	79	67
(N)	(45)	(49)	(44)	(34)	(24)

Table 8. Indicators of preventive health practices among Homemakers and Friends in the rural Maryland EFNEP, 1971 and 1972.

Preventive Health Indicator	Homemakers (Exptl. Group) Continuing 1971	Continuing 1972	Term. 1972	Friends (Control) Cont. 1972	Term. 1972
% who saw a doctor last time pregnant	78.0	82.0	91.0	71.0	75.0
Month of first prenatal visit (mean)	2.9	3.2	2.8	2.9	2.5
# of prenatal visits (mean)	7.0	5.8	6.7	4.2	5.8
% in first trimester	71.0	57.0	68.0	50.0	58.0
% who received polio vaccine	42.0	41.0	59.0	24.0	38.0
Mean no. of shots/cubes	1.0	0.9	1.6	0.5	1.0
% who received smallpox vaccination within 10 years	2.0	2.0	5.0	9.0	--
% who received tetanus shot within past five years	11.0	12.0	18.0	12.0	17.0
% ever gone to a dentist when teeth were OK	--	12.0	23.0	9.0	25.0
% whose last dental visit was for general check-up	--	4.0	7.0	0.0	17.0
% who have a lay med. book in house	36.0	43.0	73.0	50.0	58.0
% who have a thermometer in house	33.0	39.0	73.0	47.0	79.0